No. 702,985. Patented June 24, 1902.

G. A. MOORE.

WEIGHING MACHINE.

(Application filed Sept. 13, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1

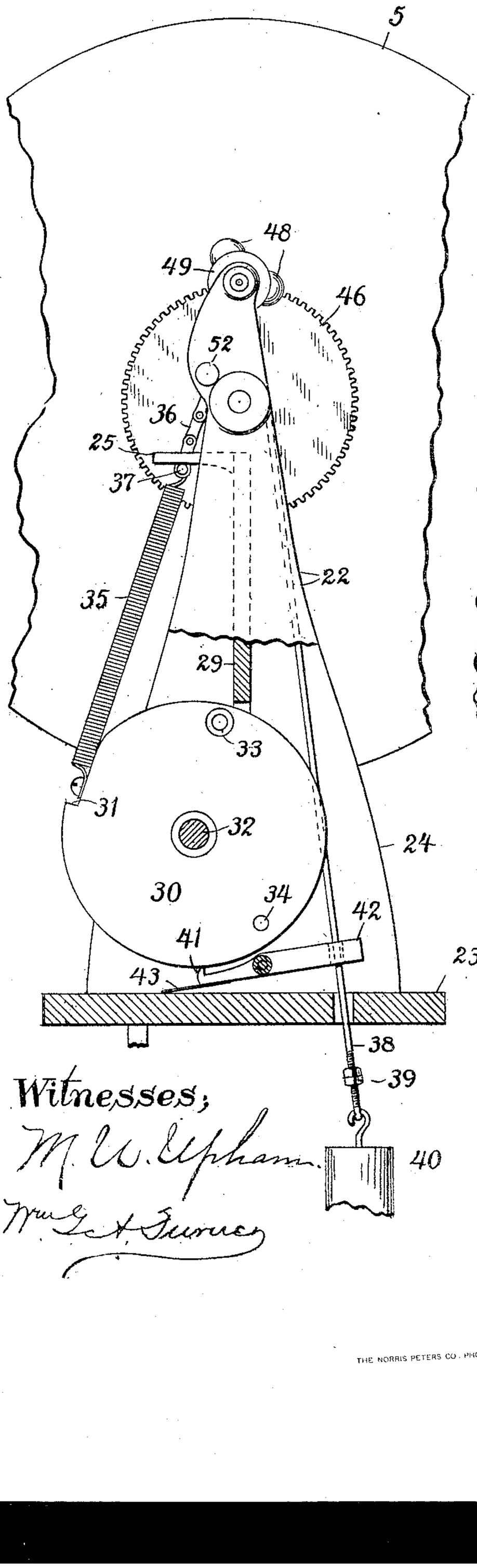
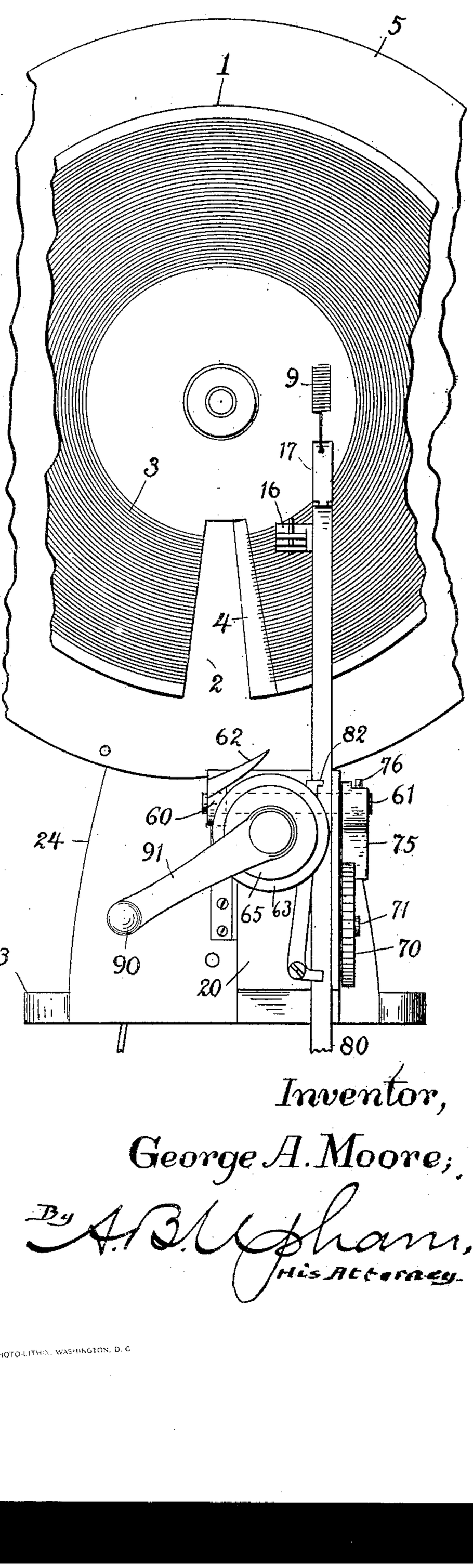


Fig. 2



Witnesses;

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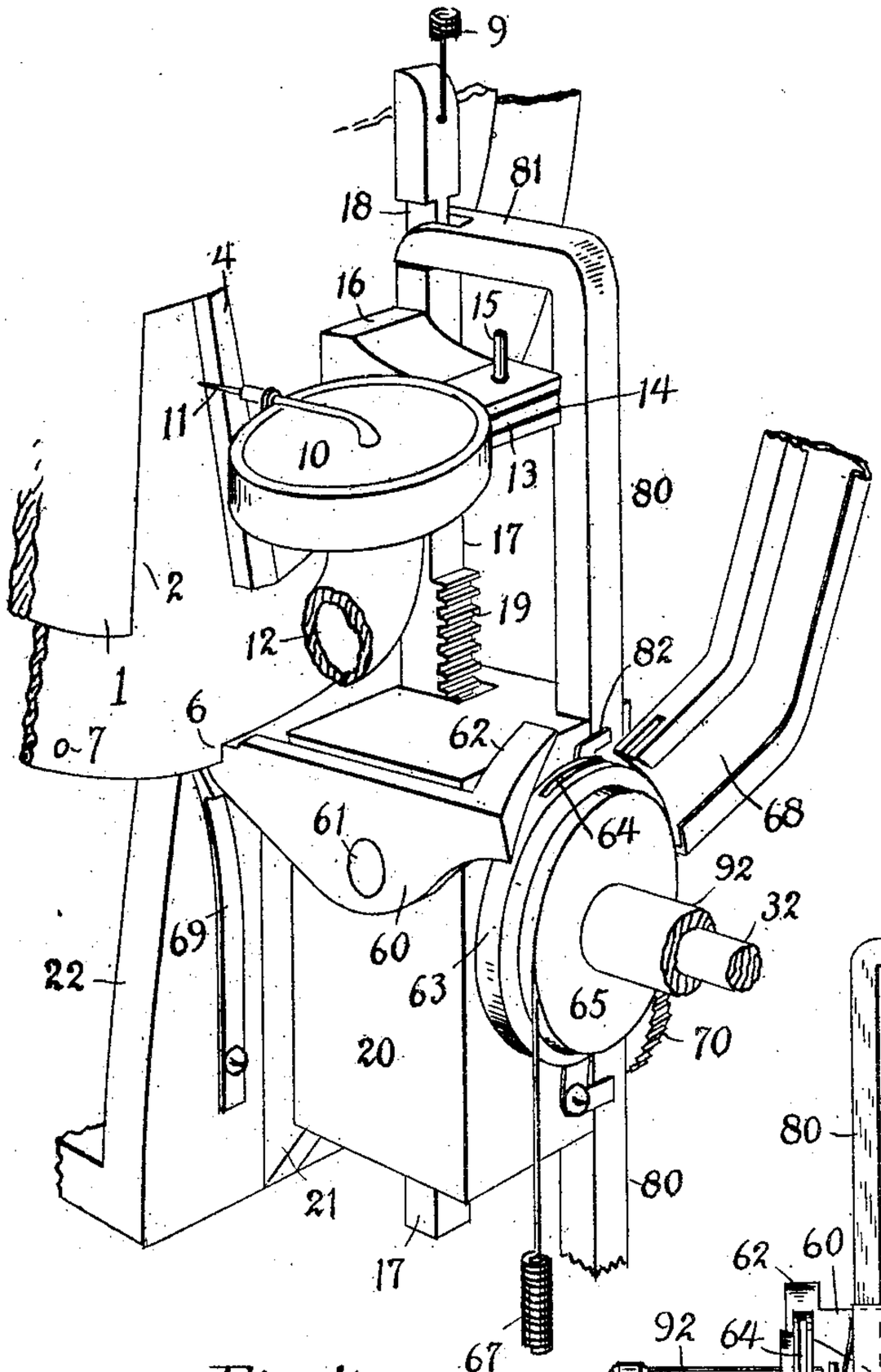

Fig. 4

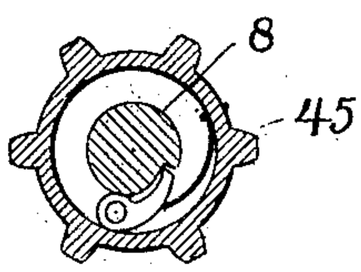

Fig. 5

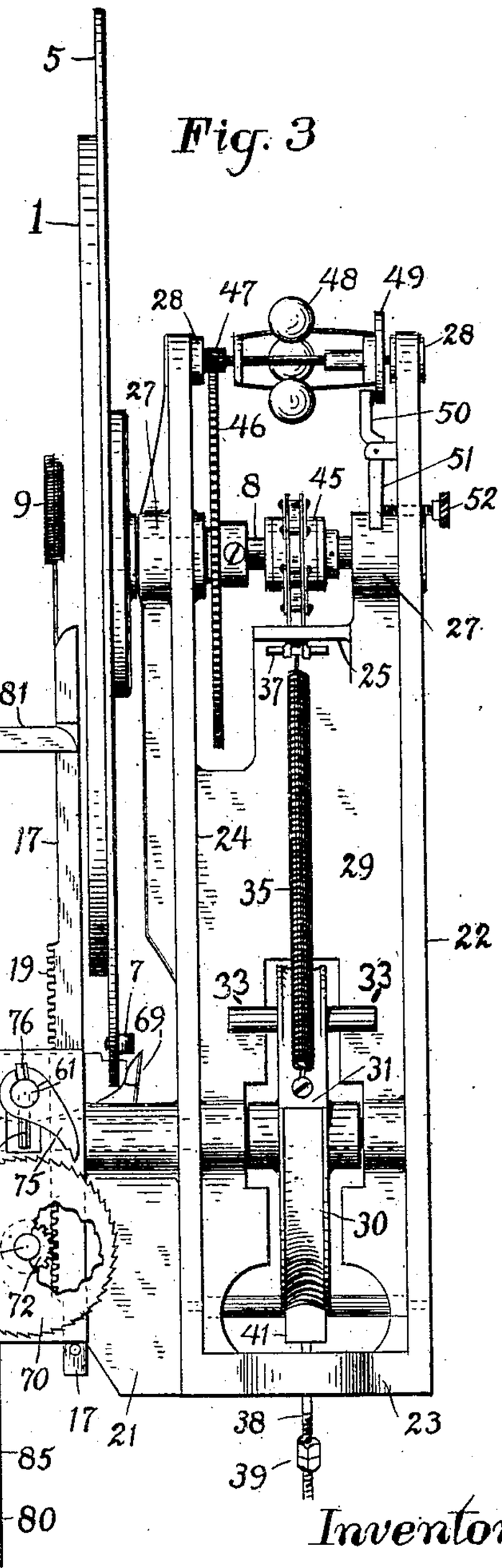

Fig. 3

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UNITED STATES PATENT OFFICE.

GEORGE A. MOORE, OF BROOKLINE, MASSACHUSETTS, ASSIGNOR TO THE MOORE TALKING SCALE COMPANY, A CORPORATION OF MAINE.

WEIGHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 702,985, dated June 24, 1902.

Application filed September 13, 1901. Serial No. 75,311. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. MOORE, a citizen of the United States, residing at Brookline, in the county of Norfolk, State of Massachusetts, have invented certain new and useful Improvements in Weighing-Machines, of which the following is a full, clear, and exact description.

This invention relates to weighing-machines in which the weight of the person standing on the machine-platform is designated vocally by means of a phonographic arrangement, as set forth in my companion applications, Serial Nos. 40,491, 97,281, and 97,283; and the object of this present invention is the effecting of certain improvements in general arrangement and detail.

Referring to the drawings forming part of this specification, Figure 1 is a rear elevation of my improved apparatus with a portion of the framework represented as broken away for the better showing of certain parts. Fig. 2 is a front elevation of the same. Fig. 3 is a side elevation of the same, and Fig. 4 is a perspective view of certain parts of the machine, with the phonographic sounder and also the coin-chute shown in position. Fig. 5 is a sectional detail view of the sprocket-wheel and clutch mechanism.

The phonographic record upon which the weight-expressing record-grooves are formed is of substantially the same construction as disclosed in my companion application, Serial No. 29,062, comprising a flat disk 1, having a series of concentric record-grooves 3 cut by a radial groove, slot, or depression 2, the edge 4 of which is beveled or inclined to more gradually guide the sounder-needle 11 into the record-grooves. This record-disk is held by the plate 5, revolubly supported by a driving-shaft 8 and having at one point in its periphery a notch 6, by which it and the record-disk are held normally stationary.

The machine is designed to be set in action by the introduction of a coin to the coin-chute 68 (see Fig. 4) and to permit the record to make a single revolution and then stop, the positioning of the record-sounder 10 through the medium of the weight of the person standing on the platform causing its needle or stylus 11 to engage the particular record-groove by which the proper weight of such person will be audibly announced. To connect the sounder directly with the weighing mechanism is wholly impracticable, for the reason that no one stands on the weighing-platform with perfect steadiness, but the sounder would receive such fluctuations in position as would cause the record-needle to move from groove to groove during the rotation of the record-disk, and thereby injure both the needle and the records. Even greater injury would result in case a person stepped off from the platform during the operation of the phonographic mechanism. The mechanism for overcoming such difficulties I have fully disclosed in my said application, Serial No. 40,491; but I have improved thereon in several particulars and in addition effected a very simple and practical motor mechanism for the record-disk, as hereinafter set forth.

I will first describe the motor mechanism.

Fixed on the shaft 8 of the record-disk is a sprocket-wheel 49, engaged by a short sprocket-chain 36, which latter is connected at one end to the tension-spring 35, anchored on the periphery of the wheel 30, and at its other end through the link 38 to a weight 40, such weight being designed to return said wheel to its normal position. By turning said wheel toward the left from the position shown in Fig. 1 until its notch or shoulder 31 is caught and held by the pawl 41 the coiled spring 35 is put in a state of tension and the record-disk 1 and plate 5 put into a condition to rotate as soon as the rocking detent 60 shall be made to release the notch 6 of the said plate. Such release being made, the said plate revolves until its notch comes again against said detent. During this single revolution the needle 11 engages some one of the record-grooves and the sounder announces the weight inscribed therein. The said detent is held through the greater part of the plate's motion by the spring-catch 69, which is, however, made to release the detent by the pin 7. To disengage the detent and set the mechanism in motion, I have devised the following mechanism: The disk 63 is formed with a slotted recess 64, adapted to partially receive a designated coin for about one-half the latter's diameter. By turning this disk in one direc-

into said recess is brought into line with the discharge end of the coin-chute 68, while by turning the disk back to its normal position the coin received is carried beneath the laterally deflected end 62 of the detent 60 and made to elevate said end, thereby disengaging the opposite end from the notch 6. Said disk is thus moved by means of the crank 91, handle 90, and shaft 32, together with the tension-spring 67, united to the pulley 65. The disk being turned toward the right by means of said crank, the coin introduced into the coin-chute 68 enters the recess 64. The crank is then released and the disk 63 is returned by the spring 67 to its normal position, during such latter movement the coin acting upon the detent, as above described. The wheel 30 aforesaid being fixed upon said shaft 32, the right-hand turn given thereto by the crank 91 moves said wheel into engagement by the pawl 41, as above described, where it is held during the operation of the mechanism. To enable the crank 91 and disk 63 to immediately return in order that the coin may at once release the plate 5, said crank is formed with a sleeve 92, rotatable on said shaft, but held from more than a quadrant's freedom by a pin 66, projecting rigidly from the shaft into a slot in said sleeve.

As already described, the plate 5 and the record-disk carried thereby are revolved by the helical spring 35, put into a condition of tension by the partial turn of the wheel 30. To regulate such motion of the disk, the shaft 8 is provided with the spur-gear 46, meshing with the pinion 47, connected with the governor-balls 48. These balls are joined to the friction-disk 49 in the usual manner, which by contacting with the adjustable member 50 regulates the speed of the mechanism. When by the action of the tension-spring 35 the record is revolved, the link 38 and weight 40 correspondingly rise. This link being made to pass through an opening in the tail 42 of the pawl 41 and provided with an adjustable collar 39, when the record and shaft have made a complete revolution said collar is brought into contact with said tail and is thereby made to disengage said pawl from the shoulder 31 of the wheel 30. Upon this occurring the weight 40 acts to return the wheel 30, spring 35, sprocket-chain 36, sprocket-wheel 45, and link 38 to their normal positions, as illustrated in Fig. 1. For this it is of course essential that the sprocket-wheel 45 shall be loosely mounted upon the shaft 8, but connected therewith by a suitable clutch, as shown by Fig. 5. The wheel 30 is kept from turning backward too far by the contact of its rubber-covered pins 33 with the frame-web 29, as shown in Figs. 1 and 3, while the sprocket-chain 36 and hence the sprocket-wheel 45 are stopped at the right point by the stop-pins 37, projecting from said chain, and the apertured shelf 25, through which the chain passes.

My arrangement for disconnecting the sounder 10 from the platform and locking it in the location where it is left by the latter is substantially the same as set forth in my said companion application, Serial No. 40,491; but I have improved thereon in certain details and will describe it in full as here illustrated.

The rod 80 is connected with the platform of the weighing-machine to rise and fall rigidly therewith, while the sounder 10 is carried by the bar 17 parallel with said rod, both being longitudinally movable in suitable ways, as the block 20. Said rod 80 is jointed at 85, as shown in Fig. 3, and said block is open at one side, as shown in Fig. 4, to permit the upper end of said rod to be swung away from the bar 17, said upper end being bent toward said bar and bifurcated, as at 81, for the engagement of the notches 18 in said bar. A leaf-spring 82 normally retains said bifurcated end in said notches, and so causes said bar to descend with said rod whenever any person stands on the platform. To disengage said rod and bar whenever a coin has been introduced within the coin-chute and the record-disk is to revolve and announce the weight, the shaft 61, on which the detent 60 is fixed, is provided with a finger 77, as shown in Fig. 3, which when said detent is rocked by the introduced coin meets the rod 80 and swings it free from the bar 17. It is necessary at the same instant to lock said bar from further motion. To do this, the shaft 61 is given a loosely-hung pawl 75, limited in its freedom by the pin 76. Immediately beneath said pawl is a finely-toothed ratchet-wheel 70, fixed on the shaft 71, and said shaft revolving freely in suitable bearings in said block 20 and provided with a pinion 72, meshing with a rack 19, formed on or affixed to the bar 17, whenever the detent 60 is made to disengage the notched plate 5 the pawl 75 drops into contact with the ratchet-wheel 70, and so locks the bar 17 from ascent. A tension-spring 9 is attached to the upper end of the bar 17 for the purpose of resiliently supporting both said bar and the sounder, and so giving the ratchet-wheel 70 a backward grip against the pawl 75.

As before stated, the wheel or drum 30 is provided with a pin or pins 33 for the purpose of contacting with the web 29, and thereby limit the return of said wheel. In addition to this I provide said wheel with another pin 34 for the purpose of limiting the forward turn of said wheel. The manner of its operation is as follows: As the said wheel is turned to tension the spring 35 and engage the shoulder 31 with the pawl 41 said pin 34 approaches the web 29 at a point above the wheel or drum, and immediately after the pawl has been thus engaged said pin contacts with said web, and so prevents further movement of the wheel. Without this pin 34 the wheel 30 could be turned far enough to unduly elongate the spring 35 and injure its elasticity. Moreover, to permit the handle 90 to turn said wheel farther would enable

mischievous persons to oscillate the wheel 30 after it had reached the pawl 41, and thereby cause injury to the parts.

What I claim as my invention, and for which I desire Letters Patent, is as follows, to wit:

1. The combination with the revoluble shaft supporting a record-disk, of a speed-governing device controlling the same, a clutch member on said shaft, a tension-spring tangentially connected with said clutch member at one end, a wheel or drum connected with the opposite end of said spring and constructed to wind the latter partially thereon, a pawl constructed to engage said wheel or drum when it is turned to put said spring in an increased tensional strain, and means acting on said clutch member to return it to its normal position when the strain on said spring is removed, substantially as described.

2. The combination with the revoluble shaft supporting a record-disk, of a speed-governing device controlling the same, a sprocket-wheel loosely mounted on said shaft, a clutch connection between said parts, a sprocket-chain passing over said wheel, a helical spring terminally secured to said chain, a wheel or drum having a concave periphery and a notch or shoulder at one point thereof and having an end of said spring attached to it in said concave periphery, a fixed pawl constructed to engage said notch or shoulder, and a link joined to an end of said chain and provided with a weight at its lower end to return it and the sprocket and sprocket-wheel to their normal positions, and a collar constructed to engage the tail of said pawl and disengage it from said wheel or drum, substantially as described.

3. The combination of the frame comprising the sides and the central web, the latter being apertured at its lower section and formed with the shelf near its upper end; the shaft revolubly supported by said sides and carrying the plate and record-disk at its outer end; the spur-gear fixed on said shaft; the governing device rotated by said gear; the sprocket-wheel and clutch on said shaft; the section of sprocket-chain passing over said sprocket-wheel and passing through an opening in said shelf; a pin projecting laterally from said chain below said shelf; the grooved wheel or drum rotatable in the aperture of said web and having the pins projecting into contact with said web; the helical spring extending from the periphery of said wheel or drum to said chain; the pawl constructed to engage a notch formed in said wheel or drum; a rod or link attached to the end of said chain opposite to said spring and descending through a hole in the tail of said pawl; an adjustable collar on said rod or link; and a weight suspended from the lower end of said rod or link, substantially as described.

4. The combination with a phonographic record, of a sounder, a vertically-slidable bar supporting said sounder, and having the rack-teeth, a pinion meshing with said rack-teeth, a vertically-movable rod constructed to engage said bar, and mechanism constructed to simultaneously disengage said rod from said bar and to lock said pinion from further rotation, substantially as described.

5. The combination with a phonographic record, of a sounder, a vertically-slidable bar carrying said sounder and notched near its upper end, a tension-spring supporting said bar, a vertically-slidable rod having its upper end bent over and bifurcated to engage said notches, and means whereby said bar is simultaneously disengaged from said rod and locked in the position wherein it is left by the latter, substantially as described.

In testimony that I claim the foregoing invention I have hereunto set my hand this 6th day of September, 1901.

GEORGE A. MOORE.

Witnesses:
A. B. UPHAM,
H. W. P. COLSON.